The organization as an information system: signposts for new investigations

H. A. Barlow,
Lecturer,
Department of Information and Communications,
Manchester Metropolitan University,
Geoffrey Manton Building,
Rosamond Street West
off Oxford Road,
Manchester
M15 6LL
Tel: 0161 247 6718
e-mail: h.a.barlow@mmu.ac.uk

M.E. Burke,
Senior Lecturer
Department of Information and Communications,
Manchester Metropolitan University,
Geoffrey Manton Building,
Rosamond Street West
off Oxford Road,
Manchester
M15 6LL
Tel: 0161 247 6136
e-mail: m.burke@mmu.ac.uk
Fax: 0161 247 6351

(All correspondence to be addressed to M.E.Burke)

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Abstract

The focus of this paper is the consideration of the need for industry to adapt to an information environment. It is proposed that long-standing organisations such as the church and government can provide examples for the development of an appropriate information model.

Introduction

This paper focuses on the question of how industry should adapt to today's information environment. It is proposed that businesses should look to long-standing organisations such as the church and government for an appropriate information model. While the development of organizational models has traditionally been the domain of organizational science, the study of organizational structure can also provide a foundation for information scientists (Eom and Farris, 1996).

Organisations in the Information Society

If organisations are to survive and flourish in the information environment there is a need for more than the implementation of technological information systems. In order for the whole organization to survive it must change its very nature and the way it operates. The influence of organizational structure on information processing within organizations has been widely discussed in literature over the years. Organizations must process information in order to function. As Kaye (1996) notes organizations "must collect, process, use, and communicate information, both external and internal, in order to plan, operate and take decisions." Davenport (1993) suggests that every organization should therefore consider the need for structured information management.

In the late 1990's, society as a whole is in the midst of the information revolution, both in terms of the technology and the volume of actual unprocessed, raw data. In the past, businesses have always been quick to respond to changes - now, in order to survive they must undergo yet another change - adapting themselves to the new information environment.

The Policy Studies Institute forecast for Britain in the year 2010 identified factors which may potentially inhibit the growth of new business systems - and then asks the fundamental question " How can organisations update their knowledge and maintain and enhance their ability to use new technical possibilities for business advantage?" The PSI identified the fact that while IT may be part of the solution, this in itself - without other adjustments - could cause considerable problems in terms of information overload. The report went on to say that there was a need for "expert information managers" who could assist in this process (Northcott, 1991). Barua *et al* (1997) identify the need to consider organizational design together with Management Information Systems if organizations are to achieve effective information management.

The effects of organizational structure on information flows

It is clear that organizational structure can influence information flow, but other aspects of information processing may also be determined by the structure of the organization. The traditional bureaucratic structure as identified by Weber (Pugh, 1990) is organized in a defined hierarchy with a clear structure for authority and communication. Individuals and departments within the organization will have defined roles for information handling and processing. Information flows vertically with commands and orders flowing from top to bottom and management information flowing in the opposite direction.

As Galbraith has noted, the bureaucratic organization finds it difficult to process the amount of information required in times of uncertainty. Burns and Stalker(1961) identified organismic forms of organisations with a network structure of authority and control as being more appropriate to changing conditions. In such organisations, rules and regulations are replaced by information and advice. Tushman and Nadler(1978) suggest that task based sub-units within such networked organisations can adapt more effectively to organizational uncertainty due to their increased information processing capacity. Tucker *et al* (1996) identify participative team based processes as key management styles in present day organizations. These lead to more horizontal organizations and improve information flow. Bentley (1995) believes that organizations need to move to less rigid frameworks in order to enable effective information flows within the organisation. Zeffane and Cheek (1994) see the use of computer technology for information sharing as requiring less formalization within the organization and therefore leading to more organic structures.

Inspirations for an information model

However, such structures can only lead to effective information processing if they are based upon a sound information model. So, where can industry look for inspiration towards building these new information models? The answer may lie in the close scrutiny of organisations which have, throughout history, been consistently classified as "information organisations". These are primarily the church and government. Organisations within these fields function within a federalist system which Handy (1990) postulates as an appropriate model for the information society.

Information, unlike other tangible resources, lacks a defined structure (Cleveland,1982). If information is to be a tool for company use there needs to be some form of information structure to ensure the accessibility of relevant information at the appropriate time. More often than not it is assumed that this structure can be provided simply through the use of information technology.

Information technology does not, however, provide a framework for selective dissemination of information and leads to information overload. Task requirements need to be taken into account when distributing information. Within highly structured organisations responsibilities are clearly defined and information needs can be identified in relation to task requirements. The mechanistic organisational structure can therefore enable more effective use of information channels.

Large bureaucratic organisations are, however, often perceived as having a structure which leads to information blockages. There is an innate human need to limit the diffusiveness of information. When an organisation is large, employees are not aware of their colleagues' information needs. Control of information also provides a sense of power (Davenport, 1992). The federal organisation is spilt into smaller branches or divisions which take responsibility for local control. This ensures that small groups within the organisation recognise their responsibility for sharing information. Each individual within the group becomes aware of the information needs of other individuals. The hierarchical structure within which the group or unit works will however establish channels and procedures for information flow in the wider organisation. It also ensures that all branches and individuals within the system are clearly aware of the information channels. As a result there is controlled dissemination of information throughout the organisation. The autonomy which each unit enjoys enables it to develop confidence in its information capabilities and breaks down defensive barriers to information sharing within the wider organisation. This enables sub-divisions of the organization to make informed decisions on local matters as well as participating fully in decision-making in the global organisation.

Allowing small units to take responsibility for running themselves can only be done if the organisation as a whole is clear about its aims and works on a principle of shared values. The goals of the wider organisation must correspond to the goals of the smaller unit. Where there is a clear

understanding of the shared values, it is easier to determine the relevancy of information for use in the organisation. It is also easier to discard irrelevant information thereby limiting the possibility of information overload.

Information processing and the Church

As Bowker (1981) notes organized religion can be viewed in systemic terms and in particular as information processing systems. Religious information must be organized and channelled in order to protect that which is important and to prevent distortion over time. Organized religions such as the Christian Church are custodians of information. They are however, by their nature, bound to disseminate information to their entire membership. It is by such dissemination that the organization can ensure its continued existence. The flow of information in such an organisation can therefore not be left to chance alone.

Within both the Roman Catholic Church and the Protestant Anglican Church this process has been controlled by the establishment of a federal organisation within a rigidly hierarchical structure. However, the hierarchy consists of very few levels. As Strassmann (1995) notes, " the world's largest information-processing organisation is the Catholic Church, with only three layers between the pope and the parish priest." The parish priest then has responsibility for an autonomous sub-unit which allows for individuals to participate in its governance.

Christianity has, as one of its fundamental principles, the needs of the individual. At the same time that individual cannot be allowed to disrupt the system as this would undermine the continuity of the information which the system is committed to preserving. By developing a parochial system within a formal bureaucratic structure, a balance can be maintained between the need to disseminate information and the need to control information.

Political information processing

Another example of large scale information processing is that of the former Soviet countries where information was very strictly controlled both on a need to know basis - and simultaneously manipulated and spread to form the basis of propaganda concerning various ideals. As Strassmann (1995) points out, "The former Soviet Union used to be the largest centrally-run information system, but its policies reflected practices of a self-absorbed, conspiratory gang."

A classic example of the Soviet attitude to information was the news of the Chernobyl disaster, which reached the ears of the Western world some time hours before citizens in Moscow were aware of the event. Stories abound of telephone calls made by relatives in the West who rang Moscow to speak to friends and family - only to find that the relatives had no knowledge of what had taken place at Chernobyl - yet it was prime news on Western television screens and newspapers. The irony is that even when ordinary people in the East were informed of these events by contacts in the West the general feeling among some citizens - who were so used to the half truths and propaganda regularly given out by their own government - that the story was still not fully believed for some time.

In order to ensure that the government's ideas were accepted and no new more liberal ideologies took hold, ideas were reinforced by the use of the KGB police, the use of informants and by other subversive procedures. In this way the population were forced to conform to the Party line. Thus the bureaucratic structure of the Soviet bloc combined with the ideology of communism resulted in an almost pure control of information. Strassmann (1995) describes the situation as "bankrupt management of information" and sees it as contributing to the disintegration of the Soviet Union.

Today , as we approach the millennium most countries of Eastern Europe are desperately trying to free themselves of reminders of the Communist era by using information in new ways in order to set up market based economies. The logical question which now being asked is this: - if information can be used to create a stifled bureaucracy in a Communist era then can information also be used to create a successful democracy? The answer must surely be yes - but what is important is the way in which the information is disseminated to the population - that there is real freedom of information for all - that there is not a situation created which is the worry of people in the West - such as that of the creation of two classes of people, namely the "information rich" and the "information poor".

Information processing in franchised organisations

A business situation which could provide an organisational information model is that of franchising. Franchises are built on successful information processing. When a franchise is bought it is simply a packet of information which is then required to be understood, implemented and exploited to the full. In addition some franchises endow the franchisee not only with information on how to make and sell the product but also with information concerning the ethics and values which may be suggested to the customers merely by the fact of associating themselves with the product.

A classic example is that of The Body Shop whose founder Anita Roddick has grown to fame through Body Shop products which are claimed not to harm the environment in any way. The Body Shop's mission is "to dedicate the business to the pursuit of social and environmental change" .Indeed in the late 1990's she has been quoted as saying "I'd rather promote human rights, environmental concerns, indigenous rights...... than promote a bubble bath"(Entine 1996) .

In this way a culture has been created - and more importantly - successfully and tightly controlled from the top by the creation and promotion of small federal like organisations which are all sold the same packet of information concerning ethics as well as products. In this way ideas and beliefs are passed on from one generation of users to the next thereby strengthening the culture. Of course this form of doing business can also be quite risky as the owners of Body Shop have recently found out - by taking the moral high ground they are also in risk of a greater fall from grace than perhaps other companies who are more openly cut throat and profit orientated. The Body Shop has been beset by recent scandals in that there are now many allegations that the Company does not in fact live up to its squeaky clean, environmentally friendly, reputation. However, as with most cultures there is also no shortage of people who will defend The Body Shop doctrine as "the truth, the whole truth and nothing but the truth". Thereby lies the success of information processing in franchised organisations.

Conclusion

It is therefore proposed that the model for a successful information organisation should incorporate the principles of federalism and subsidiary. Many similarities can be found between the principles of information processing applied within franchised businesses and those principles applied by organised religion. While clear control is maintained over the mission of the organisation and its information implications the day to day information processing is conducted by small autonomous groups.

Many organisations believe that this can be achieved by task oriented teams. Although subdivided groups such as task oriented teams are a valid and successful form of organisation structure, there is still a need for a strong element of process control - such as that defined by the procedures of an organisational bureaucracy.

On the other hand, as the example of the Soviet Union shows, excessive controls over information with a disregard for individual participation in information processing can only result in the disintegration of the information system.

The authors of this article believe that an information model for organisations must therefore incorporate the principles of federalism and subsidiarity as observed in franchised organisations. They are currently designing a research project to test the validity of this hypothesis.

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